

IN THE SPECIFICATION

At page 8, lines 17-22, bridging over to page 9, lines 1-2:

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Gas enters the combustion system 50 through tube 70 and eventually is relatively evenly distributed throughout ring-shaped burner tube 72. As gas leaves via gas exit holes 74 it is ignited by ignitor 90. After the gas is ignited, the control circuit ensures that a stream of gas exits gas holes 74, thereby ensuring that a flame is continuously lit at the combustion system 50.

A flame sensor 37 can have dual functions, initially it can act as the ignition source and light or ignite the air/gas mixture to initiate proper combustion, and secondly it provides flame rectification thus signaling to the control circuit that there is proper combustion to the control circuit to maintain the gas valves open 54, 56 and discontinue the ignition source.

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IN THE CLAIMS

Please amend the following claims:

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1. A combustion system for use in a gas burning heater, the combustion system comprising:

(Q2) a circularly-shaped burner tube having a plurality of gas exit holes on one side and a means for feeding a controlled amount of gas thereto, said burner tube having a set diameter;

a first conical frustum section having a pre-determined first pattern of orifice ports, the first conical frustum section having a basal end having a diameter proximate the

diameter of the burner tube and a smaller diameter distal end, the basal end of the first conical frustum section being attached to the burner tube proximate said plurality of gas exit holes at a position radially inward from said gas exit holes; and

*a<sup>2</sup>* a second conical frustum section having a pre-determined second pattern of orifice ports, said second conical frustum section having a basal end and a larger diameter distal end, said basal end of the second conical frustum section having a diameter proximate the diameter of the burner tube, said basal end of the second conical frustum section attached to the burner tube proximate said plurality of gas exit holes at a position radially outward from said gas exit holes.

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5. The combustion system of claim 1 wherein said predetermined first pattern of orifice ports are arranged in a spiral-shaped pattern.

*a<sup>3</sup>* 6. The combustion system of claim 5 wherein said predetermined second pattern of orifice ports are arranged in a spiral-shaped pattern.

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Please add the following new claims:

*a<sup>4</sup>* 19. The combustion system of claim 1 wherein said means for feeding a controlled amount of gas to said gas exit holes is variable thereby adjusting the heat output of the

combustion system.

20. A combustion system for use in a gas burning heater, the combustion system defining a combustion chamber within the gas burning heater, the combustion system comprising:

a circularly-shaped burner tube having a plurality of gas exit holes on one side, said burner tube having a diameter determined by the desired output of the gas burning heater;

a means for delivering gas to said burner tube;

*AM*  
a first conical frustum section having a pre-determined first pattern of orifice ports, the first conical frustum section having a basal end having a diameter proximate the diameter of the burner tube, the basal end of the first conical frustum section being attached to the burner tube proximate said plurality of gas exit holes at a position radially inward from said gas exit holes, the first conical frustum section having a converging profile as the distance away from the burner tube increases; and

a second conical frustum section having a pre-determined second pattern of orifice ports, said second conical frustum section having a basal end having a diameter proximate the diameter of the burner tube, said basal end of the second conical frustum section attached to the burner tube proximate said plurality of gas exit holes at a position radially outward from said gas exit holes, the second conical frustum section having a diverging profile as the distance away from the burner tube increases;

said first and second conical frusta sections communicating with the burner tube for mixing the

appropriate amount of air to the volume of gas exiting said gas exit holes for defining a combustion chamber within the gas heater and burning said gas.

21. The combustion system of claim 20 wherein said pre-determined first pattern of orifice ports on said first conical frustum section includes a plurality of evenly-spaced rows of orifice ports.

22. The combustion system of Claim 21 wherein at least the last row of the plurality of evenly-spaced rows of orifice ports proximate the distal end are larger in diameter than the first row closest to the basal end.

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23. The combustion system of claim 22 wherein said pre-determined second pattern of orifice ports on said second conical frustum section includes a plurality of evenly-spaced rows of orifice ports.

24. The combustion system of Claim 23 wherein at least the last row of the pre-determined second pattern of evenly-spaced rows of orifice ports proximate the distal end are larger in diameter than the first row closest to the basal end.

25. The combustion system of claim 20 wherein said means for feeding a controlled amount of gas to said burner tube may be variably controlled.